

Appl. No. : 10/719,419
Filed : November 21, 2003

AMENDMENTS TO THE CLAIMS

Please cancel claims 1, 3, 17, and 20 without prejudice, and please amend the claims as follows.

1. (Canceled)
2. (Currently amended) The method of ~~Claim 1~~ Claim 4, wherein forming a molded housing comprises encapsulating a plurality of semiconductor dies.
3. (Canceled)
4. (Currently amended) ~~The method of Claim 3, A method of magnetically shielding a semiconductor die, comprising:~~

forming a molded housing around the semiconductor die; and
applying a preformed film of magnetic shield material to at least one outer surface of the molded housing, wherein the at least one outer surface of the molded housing comprises a recessed region, into which region the preformed film of magnetic shield material is applied wherein applying comprises fitting so that the preformed film is fitted within the recessed region under an overhang along at least a portion of a perimeter of the recessed region, the preformed film being approximately parallel to a major surface of the semiconductor die.

5. (Currently amended) The method of ~~Claim 1~~ Claim 4, wherein applying the preformed film of magnetic shield material to at least one outer surface of the molded housing comprises applying the preformed film to both a top outer surface and a bottom outer surface of the molded housing.

6. (Currently amended) The method of ~~Claim 1~~ Claim 4, wherein the semiconductor die is attached to a plastic substrate before the molded housing is formed, and the molded housing encapsulates the semiconductor die on the plastic substrate.

7. (Original) The method of Claim 6, wherein the plastic substrate comprises a ball grid array substrate.

8. (Original) The method of Claim 6, further comprising bonding wires between the semiconductor die and electrical traces on the plastic substrate after the semiconductor die is attached to the plastic substrate and before forming the molded housing.

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9. (Original) The method of Claim 6, further comprising bonding solder bumps on the semiconductor die to electrical traces on the plastic substrate before forming the molded housing.

10. (Currently amended) The method of ~~Claim 1~~ Claim 4, wherein applying the preformed film of magnetic shield material to at least one outer surface of the molded housing comprises attaching the preformed film to the molded housing with an epoxy-based adhesive.

11. (Currently amended) The method of ~~Claim 1~~ Claim 4, wherein the magnetic shield material is selected from the group consisting of mu metal and permalloy.

12. (Currently amended) The method of ~~Claim 1~~ Claim 4, wherein applying the preformed film of magnetic shield material is conducted after all high temperature processing.

13. (Currently amended) The method of ~~Claim 1~~ Claim 4, further comprising degaussing the preformed film of magnetic shield material before applying the preformed film to the at least one outer surface of the molded housing.

14. (Previously presented) The method of Claim 13, further comprising removing the preformed film of magnetic material from the outer surface of the molded housing before degaussing and re-applying the preformed film.

15. (Currently amended) ~~The method of Claim 1,~~ A method of magnetically shielding a semiconductor die, comprising:

~~wherein forming the molded housing further comprises forming~~ forming ~~[[the]] a molding housing with a recess including overhanging tabs such that~~ around the semiconductor die;
and

~~applying~~ applying ~~[[the]] a preformed film of magnetic shield material further comprises to~~
at least one outer surface of the molded housing using the overhanging tabs to
mechanically retain the magnetic shield material within the recess, the preformed film
being approximately parallel to a major surface of the semiconductor die.

16. (Currently amended) ~~The method of Claim 1,~~ A method of magnetically shielding a semiconductor die, comprising:

~~wherein forming the molded housing~~ around the semiconductor die further
~~comprises forming so that~~ a recess is formed ~~in the molded housing that mechanically~~
~~retains~~ [[the]] a preformed film of magnetic shield material; and

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applying the preformed film of magnetic shield material to at least one outer surface of the molded housing, the preformed film being approximately parallel to a major surface of the semiconductor die.

17. (Canceled)

18. (Currently amended) ~~The method of Claim 1,~~ A method of magnetically shielding a semiconductor die, comprising:

forming a molded housing around the semiconductor die; and

applying a preformed film of magnetic shield material to at least one outer surface of the molded housing so that wherein applying the preformed film of magnetic shield material further comprises is removably trapped trapping the preformed film of magnetic shield material within a recess formed in the molded housing, the preformed film being approximately parallel to a major surface of the semiconductor die.

19. (Currently amended) ~~The method of Claim 1~~ Claim 18, wherein forming the molded housing further comprises forming a unitary molded housing.

20. (Canceled)

21. (Currently amended) ~~The method of Claim 20~~ Claim 25, further comprising forming a recess in a major surface of the encapsulant, wherein applying comprises fitting the selected preformed magnetic shield layer within the recess.

22. (Previously presented) The method of Claim 21, further comprising removing the selected preformed magnetic shield layer from the recess, conducting high temperature processing upon the packaged chip while the preformed magnetic shield layer is removed, and replacing the magnetic shield layer after high temperature processing.

23. (Original) The method of Claim 22, further comprising applying a strong magnetic field to the packaged chip during the high temperature processing.

24. (Currently amended) ~~The method of Claim 20~~ Claim 25, wherein applying comprises adhering.

25. (Currently amended) ~~The method of Claim 20,~~ A method of packaging an integrated circuit chip, comprising:

mounting the chip on a die carrier;

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~~wherein~~ molding epoxy ~~further comprises~~ over the chip to form an encapsulant
~~wherein~~ forming a recess including overhanging tabs is formed in a major surface of the
encapsulant; [[and]]

selecting a preformed magnetic shield layer so that a thickness of the preformed
magnetic shield layer is tailored to a strength of an external magnetic field of an intended
environment; and

~~wherein~~ applying the selected preformed magnetic shield layer over the
encapsulant ~~further comprises removably trapping so that~~ the preformed magnetic shield
layer is removably trapped with the overhanging tabs.